WHAT IS CLAIMED IS:

1. An electronic control unit comprising:

a microcomputer for controlling an actuator; and

a first internal timer and a second internal timer, wherein

the microcomputer includes a first input capture function for capturing a time of the first internal timer at which an edge of a square wave input signal is detected,

the microcomputer performs calculation for the control of the actuator based on the time of the first internal timer,

the microcomputer further includes a second input capture function for capturing a time of the second internal timer at which the edge of the square wave input signal is detected, and

the microcomputer diagnoses at least one of the first and the second capturing functions by performing comparison between the time of the first internal timer and the time of the second internal timer.

2. The electronic control unit according to claim 1, wherein the first internal timer and the second internal timer are configured in one timer.

3. The electronic control unit according to claim 1, wherein the first internal timer and the second internal timer are independently configured.

4. The electronic control unit according to claim 1, wherein:

the control of the actuator is disabled when one of the input capture function is determined as abnormal;

the actuator is saved in a safe position; and

the abnormal input capture function is reported.

5. An electronic control unit comprising:

a microcomputer for controlling an actuator;

a first internal timer and a second internal timer; and

a switching means, wherein

the microcomputer includes a first input capture function for capturing a time of the first internal timer at which an edge of each of square wave input signals is detected,

the microcomputer performs calculation for the control of the actuator based on the time of the first internal timer,

the switching means selects the square wave input signals in orderly sequence for capturing,

the microcomputer further includes a second input capture function for capturing a time of the second internal timer at which the edge of the selected square wave input signal is detected, and

the microcomputer diagnoses at least one of the first and the second capturing functions by performing comparison between the time of the first internal timer and the time of the second internal timer.

6. The electronic control unit according to claim 5, wherein the switching means is provided outside the microcomputer.

7. The electronic control unit according to claim 5, wherein the microcomputer disables the comparison during a predetermined period after the switching means has switched.

8. The electronic control unit according to claim 5, wherein the microcomputer excludes the time of the second internal timer from using for the comparison if the time is captured at a time when an edge of the square wave input signal is detected at least for the first time since the switching means has switched.

9. The electronic control unit according to claim 5, wherein the first internal timer and the second internal timer are configured in one timer.

10. The electronic control unit according to claim 5, wherein the first internal timer and the second internal timer are independently configured.

11. The electronic control unit according to claim 5, wherein:

the control of the actuator is disabled when one of the input capture function is determined as abnormal;

the actuator is saved in a safe position; and

the abnormal input capture function is reported.

12. An electronic control unit comprising:

a microcomputer for controlling an actuator; and

a first internal timer and a second internal timer, wherein

the microcomputer includes a first input capture function for capturing a time of the first internal timer at which an edge of a square wave input signal is detected,

the microcomputer performs calculation for the control of the actuator based on the time of the first internal timer,

the microcomputer further includes a second input capture function for capturing a time of the second internal timer at which the edge of the square wave input signal is detected, and

the microcomputer diagnoses at least one of the first and the second capturing functions by performing comparison between a result of a calculation performed based on the time of the first internal timer and a result of a calculation performed based on the time of the second internal timer.

13. The electronic control unit according to claim 12, wherein the first internal timer and the second internal timer are configured in one timer.

14. The electronic control unit according to claim 12, wherein the first internal timer and the second internal timer

are independently configured.

15. The electronic control unit according to claim 12, wherein:

the control of the actuator is disabled when one of the input capture function is determined as abnormal;

the actuator is saved in a safe position; and

the abnormal input capture function is reported.